



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/705,661	11/03/2000	Kazuto Okazaki	4296-123	6250

7590 01/29/2004  
Diane Dunn McKay Esq  
Mathews Collins Shepherd & Gould PA  
100 Thanet Circle  
Suite 306  
Princeton, NJ 08540

EXAMINER

RIDLEY, BASIA ANNA

ART UNIT PAPER NUMBER

1764

DATE MAILED: 01/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AS

**Office Action Summary**

Application No.

09/705,661

Applicant(s)

OKAZAKI ET AL.

Examiner

Basia Ridley

Art Unit

1764

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 September 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 8-13 is/are pending in the application.
- 4a) Of the above claim(s) 11-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All    b) ☐ Some \*    c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. The drawings were received on 18 August 2003. These drawings are acceptable.

### *Specification*

2. The disclosure is objected to because of the following informalities:
  - inconsistent numbering of elements throughout the specification: e.g. page 18, paragraph 2, line 9 (as amended on 18 August 2003) "line 6" should be replaced with "line 106".

Appropriate correction is required. Applicant is reminded that no new matter shall be added.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim(s) 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art (as shown in Fig. 1 of instant specification and as described on P1/L15-P5/L29) in view of Oswalt et al. (USP 4,769,998).

Regarding claim(s) 8-10, Admitted Prior Art disclose(s) similar apparatus for production of acrylic acid or acrolein comprising:

- an evaporator (3) for gasifying liquefied propylene and/or propane (14);
- means (24) for supplying a coolant (17) to said evaporator (3);
- means (3) for chilling the coolant (17) in the evaporator (3) by recovering latent heat of the

Art Unit: 1764

liquefied propylene and/or propane (14) (P3/L19-25);

- means (4) for subjecting resultant gasified propylene and/or propane to a catalytic gas phase oxidation reaction thereby preparing a gas containing acrylic acid or acrolein (Fig. 1);
- wherein said means (3) chilling the coolant (17) includes means (24) for adjusting the temperature of said coolant (17) or means for adjusting a flow amount thereof (Fig. 1).

Admitted Prior Art discloses that a coolant supplied to said evaporator is chilled by evaporating liquefied propylene and/or propane (Fig. 1) and the reference discloses that said apparatus comprises various heat exchangers which use a liquid coolant (Fig. 1 and P2/L24-P3/L18). The reference does not explicitly disclose that said chilled coolant can be used in said heat exchangers in the apparatus and later re-circulated back to the evaporator.

Oswalt et al. teaches that it is known to prepare a process coolant, which can be used as a coolant in heat exchangers in various processes (C1/L9-19), by passing a liquid coolant through an evaporator (6). Chilled coolant from said evaporator (6) is used in various processes and spent process coolant is being re-circulated back to the evaporator (6).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a liquid coolant in the evaporator of Admitted Prior Art to prepare a chilled coolant and to use said chilled coolant in heat exchangers in the apparatus for production of acrylic acid or acrolein, as taught by Oswalt et al., for the purpose improving operation efficiency. Said modification would merely amount to using an available coolant rather than a coolant which has to be prepared in auxiliary process, therefore saving an operation cost of said auxiliary process.

While the references disclose that said coolant can be used to control temperature of various processes, including chemical reactions (Oswalt et al. C1/L9-19 and C6/L63-32), the references do not explicitly disclose any specific temperatures for liquid coolant before or after

Art Unit: 1764

said coolant is passed through the evaporator. As the temperature at which chemical reactions are being conducted is a variable that can be modified, among others, by adjusting the temperature of coolant used to remove heat from said chemical reactions, with said reactions temperature decreasing as the temperature of the coolant is decreased, the precise temperature of the coolant (at any point of the process) would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed coolant temperatures cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the coolant temperatures at various process stages in the apparatus of Admitted Prior Art in view of Oswalt et al. to maintain the desired temperature of chemical reaction conducted in said apparatus (*In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller*, 105 USPQ 223).

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Art Unit: 1764

***Response to Arguments***

6. Applicant's arguments filed on 18 September 2003 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

7. In view of the foregoing, none of the claims are allowed.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Basia Ridley, whose telephone number is (571) 272-1453. The examiner can normally be reached on Monday through Thursday, from 9:00 AM to 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola, can be reached on (571) 272-1444.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

Basia Ridley  
Examiner  
Art Unit 1764



BR  
January 26, 2004